

# *Compact Theater*

By Atlantic Technology

## **System Two PBM**

High Performance Compact  
Powered Subwoofer System



# Owner's Manual

Covers Compact Theater Two PBM Powered Subwoofer

# System Two PBM

## High Performance Powered Subwoofer

Congratulations on your purchase of an Atlantic Technology Compact Theater Two PBM powered subwoofer. With proper care, your new subwoofer will provide many years of trouble-free performance.

The System Two PBM is capable of delivering very high output levels and a wide dynamic range with smooth in-room response down to approximately 20 Hz, with a peak SPL of 105dB.

The built-in proprietary high-current Class G amplifier is conservatively rated at 150 watts RMS. This amplifier, coupled with the massive 12" long-throw woofer in a sealed enclosure, generates musically accurate deep bass with a minimum of distortion.

Your Atlantic Technology powered subwoofer will smoothly integrate with virtually all other brands of loudspeakers on the market. All its internal electronics have been designed to maintain optimum signal integrity. From the premium quality gold plated connectors to the clearly marked controls, this is one of the most versatile high performance subwoofers you can buy. An added benefit is its relatively compact size and straight forward design.

## Features

Your Atlantic Technology powered subwoofer has been engineered using the latest technology and finest components available. It features:

- ❖ **Long-throw 12" driver with a vented motor structure and 2" high temperature, 4 layer voice coil.**  
This powerful driver has a very stiff cone that acts as an almost perfect piston throughout its operating range. Its massive magnetic motor assembly and high temperature component parts deliver high performance and exceptional reliability.

- ❖ **Sealed enclosure for low distortion and deep bass output.**  
Sealed enclosure designs are inherently low in distortion and naturally deliver deep, smooth bass response with a gradual and predictable roll-off below resonance. As with all Atlantic Technology subwoofers, we have paid inordinate attention to giving you accurate musical bass reproduction along with terrific special effects.

- ❖ **A linear power high current Class G amplifier conservatively rated at 150 watts RMS.**  
Atlantic's advanced Class G amplifiers utilize dual low voltage/high voltage power supplies for exceptional power delivery from a compact, efficient package. One power supply operates during all "normal" demand periods. But when a high demand peak signal appears at the subwoofer input, the second, high voltage supply immediately switches in to dramatically boost the amplifier's low distortion output capability. The amplifier delivers very high power levels yet it consumes less steady-state power and produces much less heat than standard comparable amplifier designs. The System Two PBM's custom designed amplifier has been

precision matched and equalized to its 12" driver. It exerts accurate and powerful control over the driver for the best performance possible.

- ❖ **Useful working frequency range from 20 Hz to 150Hz.**
- ❖ **A unique Dual Diversity Crossover™ (DDC) system with an adjustable (50 Hz to 150 Hz) 12 dB per octave low-pass crossover, and a fixed 24 dB per octave "voice filter" at 180 Hz.**

This sophisticated crossover's upper end roll-off slope is an extremely steep 12 dB + 24 dB per octave, totaling 36 dB per octave above 180 Hz. It allows for exceptional integration with most any brand or type of speaker on the market. We have developed this unusual design to eliminate any possibility of out-of-band information being audible from the subwoofer and thereby making it localizable.

The DDC filter is incorporated to allow this subwoofer to match well with compact home theater speaker systems. If you are using a subwoofer with extremely small satellites which have limited mid-bass output you have to cross over the subwoofer at a fairly high frequency. Since very compact Left / Right / Center speakers typically aren't capable of delivering significant output below 100 to 125 Hz, their mating subwoofer must reproduce these sounds. However, it's critically important that all sounds above this frequency be eliminated from the subwoofer, in order to make for correct system integration. This is because higher frequencies are your ears' clues to where sound comes from. The innovative DDC 36dB crossover in the System Two PBM ensures precise and seamless system integration with compact satellite speakers. A subsonic filter is also incorporated to filter out inaudible ultra-low frequencies that can rob amplifier power.

### **Important Note—If you are NOT using the complete Compact Theater System Two:**

If you are using a surround receiver/processor that includes its own *filtered* subwoofer output and ultra-compact satellites, we strongly recommend that you connect the System Two PBM to your system using the speaker or high level inputs. This is because most receiver/processor internal crossovers are only 12dB per octave, which is not steep enough for use with the higher crossover levels required for ultra-compact satellites. Only use the low level RCA inputs when the processor outputs unfiltered signals. Should your processor include a 120Hz crossover, and a slope of 18dB or higher, you may connect it to the low level inputs on the System Two PBM (*see Example 2*).

- ❖ **Two line inputs, two line thruputs.**  
The thruputs allow daisy chaining of multiple subwoofers, or can act as a return path back to the processor.
- ❖ **Two high level inputs, two high level thruputs.**  
These let you connect the subwoofer to your amplifier using the amplifier's speaker outputs. Once again, you can daisy chain to another subwoofer using the unmodified signal that comes out of the thruput connectors.

- ❖ **Phase Invert toggle switch (0/180 degrees).**  
This switch allows precise acoustic matching with speaker systems whose output may be phase reversed. This switch will also allow you to compensate for unusual room acoustics that occur when the woofer is physically separate from the midrange/high frequency units. Be sure to try the Phase switch in both positions when you set up the System Two PBM, even if you just change the built-in crossover settings, since the crossover control and the Phase switch acoustically interact with each other.
- ❖ **Front panel mounted level control.**
- ❖ **Automatic standby operation.**  
Automatic standby features a 7-10 minute turn-off delay and a front panel multi-color LED status indicator.
- ❖ **AC cord power input socket.**  
Your subwoofer comes supplied with a heavy-duty detachable power cord.
- ❖ **Designed and built to meet all UL/CSA and European safety requirements.**

## Connecting Your Subwoofer

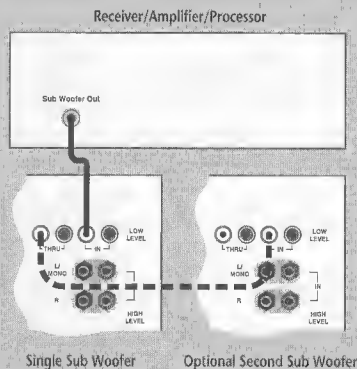
The Atlantic Technology System Two PBM Powered Subwoofer is simple to hook up, offering several connection methods for maximum flexibility. Study the system diagrams starting on the next page. Once you have found the example which most closely matches your system, hook up your subwoofer(s) as shown in that diagram.

### Low-Level Connection

If you have purchased the entire Compact Theater Two system, we suggest using the low-level (RCA jacks) subwoofer line out or preamp outputs if your receiver/processor has them. Simply connect your subwoofer with high quality shielded cables as shown in the diagrams.

#### Example 1: Line Out/Low Level In for 1 or 2 Subwoofers

Before using this connection method, please see the Important Note on page 2.



### Using the Low-level Thruput

If desired, you can run a line level stereo signal through the System Two PBM and out to another unit. This way you can add an additional subwoofer with minimal additional wiring. The signal that comes out of the Thruput jacks is identical to the input signal.

### High-Level Connection

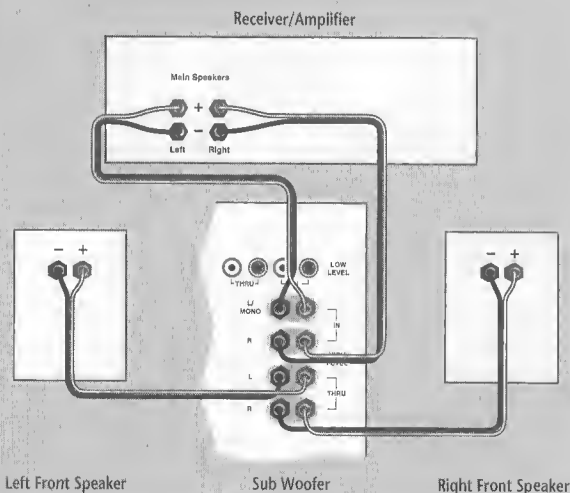
Alternately, you may use the high-level (speaker) inputs. Make sure to match the type and gauge speaker wire used to connect your main speakers. As mentioned above, we strongly suggest you use the High-level inputs if you are using ultra-compact satellite speakers that have little of no output below 125 Hz. We recommend that you connect your new System Two PBM Powered Subwoofer(s) using high quality wire of 16 gauge or larger. There are many respected manufacturers in the audio industry that specialize in speaker wire and interconnect cables suitable for your new system. We recommend that you consult your audio/video specialist for more specific information.

### High-level Thruput

If desired, you can run a high level stereo signal through the System Two PBM and out to another unit. This way you can add an additional subwoofer with minimal additional wiring. The signal that comes out of the Thruput jacks is identical to the input signal.

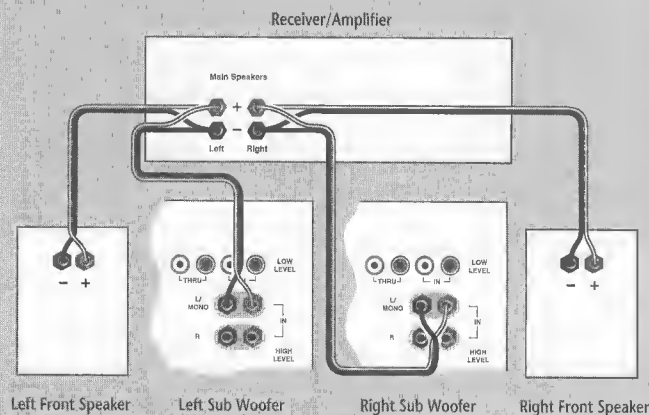
#### Example 2: Speaker Out/High Level In for 1 Subwoofer

Recommended method for connecting to a discrete 5.1 channel. Please see the Important Note on page 2.



#### Example 3: Speaker Out/High Level In for 2 Subwoofers

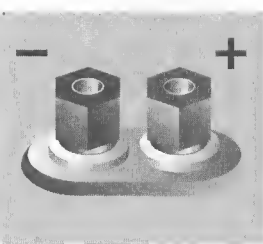
Recommended method for connecting to a discrete 5.1 channel. Please see the Important Note on page 2. You can also use the speaker level THRU outputs. Note that the L/MONO High Level input is used on both left and right subwoofers.



**Warning:** To prevent risk of electrical shock or damage to your equipment, always unplug all component AC cords before proceeding with speaker and component connections! The last step in wiring your system should be plugging in the AC cords!

**Note:** Due to the very close placement of the High-level connectors the most practical connector to use is "double banana jacks" available from most any electronic supply store.

You can connect to the High-level inputs by using a variety of connectors, or by removing 1/2" of insulation from each wire end, twisting the strands of wire together, placing the wire through one of the post holes and screwing down the nut tightly. We recommend that you check your local electrical codes to make sure you are not using an improper connector.



It is important to observe polarity while making speaker connections: red (+) terminals on the amplifier to red (+) on the speaker, black (-) on the amplifier to black (-) on the speaker. Look carefully at the wires you are using and note that one of the wires in each pair will be marked by either color, printing on the covering, a ridge on one side, or a thread intertwined with the wire strands. By convention, the marked wire is connected to the red (+) terminal.

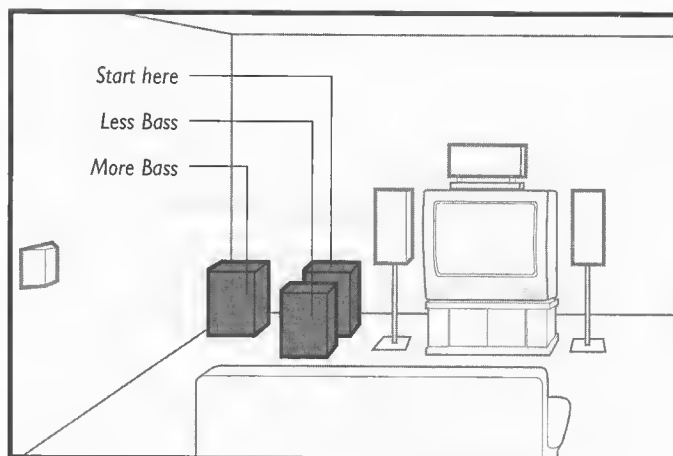
## Power Connection

Connect the power cord to an AC outlet only after making all other connections to the subwoofer. This will avoid any chance of accidentally activating the subwoofer while wiring. Atlantic Technology DOES NOT RECOMMEND plugging the subwoofer into the switched outlet of an amplifier, preamplifier, or receiver. The power demands of the subwoofer amplifier may exceed the power rating of the switched outlet and may damage the equipment.

The System Two PBM is totally automatic in its operation. The automatic on/off circuitry will only activate the subwoofer in the presence of an audio signal from your audio/video system. After 7-10 minutes with no signal detected from the rest of the system, the amplifier will shut itself off and go into standby mode. When an audio signal is present, the power LED located under the front grille will glow green. Power consumption in the standby mode is negligible. Standby operation can be completely bypassed by plugging the System Two PBM into a heavy-duty switched power outlet strip if you desire. In this mode, the subwoofer will be powered when the power switch is turned on and will still operate in automatic standby when the power strip is active.

## Placement and Operation

Generally speaking, the best location for your new Subwoofer will be in the front of the room, in or close to a corner. Every room has its own unique sound characteristics, and flexibility in the exact placement of the subwoofer is always desirable. The closer the subwoofer is placed to a wall and especially a corner, the more



and deeper the bass response you will hear. However, in many rooms, corner placement can produce too much bass or a "one note" boomy effect. Under such circumstances the subwoofer may work better well away from the corner. You should experiment to find the best position in your room.

**Helpful Hint:** A particularly handy way to experiment is to place the subwoofer right at the prime listening position, play something with lots of good bass (preferably music), and walk around the room listening to the subwoofer's response. When you locate an area that has lots of well defined bass you have found a good potential place to locate the sub.

Refer back to the wiring diagrams on the previous to determine the correct wiring scheme for your particular setup. Then proceed with listening and fine tuning.

## Subwoofer Tuning Using the Variable Level Control

Start your listening with the subwoofer Lo-Pass control set at approximately one third of its range (which corresponds to 90Hz), the phase switch set to normal, and the front panel variable level control set to the bottom of its range (fully



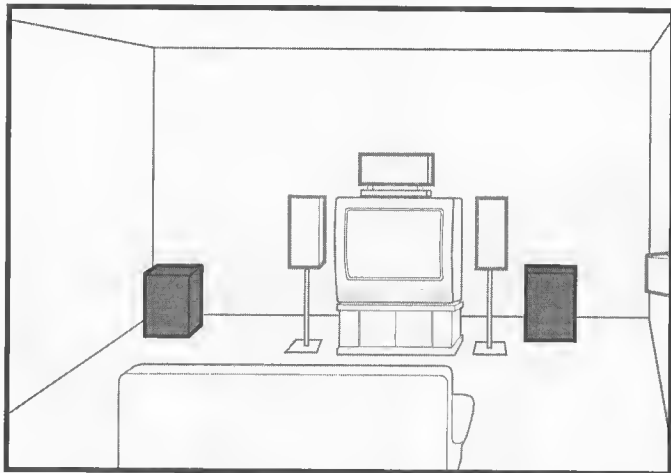
counterclockwise facing the front of the woofer). Play some music that you know has good bass content, and turn the level control up until you just start to hear the subwoofer working. Now, from your normal listening position, determine

whether the subwoofer is playing loudly enough and filling in the bass frequencies of the music evenly. If adjustment is necessary, change the setting of the front panel level control to compensate.

If the bass seems too heavy, move the subwoofer away from the corner. If the bass seems too thin, move the subwoofer closer to the corner. Small differences in positioning the subwoofer can make big differences in the overall bass response. When you find a position that seems to work well, try switching the phase switch between its two settings, listening closely for the smoothest transition from the subwoofer to the satellites. In many cases people prefer more bass impact for movies than sounds natural when reproducing music. You may wish to determine both a

video level and an audio level if you find yourself falling into this camp. Remember however, the most common error most people make is to play the subwoofer too loudly. Of course, the Bass Police will not arrest you for this act. But should you wish for the most accurate overall reproduction, a well balanced sound from bass to highest treble is the best way to get it. Have fun. Experiment. Try it. You'll like it.

When two subwoofers are used, whether for regular Dolby Pro Logic, Dolby Digital AC-3, DTS, or pure music reproduction they should be placed asymmetrically; that is, in slightly different positions on each side of the television. This will help to attenuate room resonances that are common to symmetrically positioned subwoofers. You can also try placing the subwoofers in the same corner, if you wish. Experiments have shown this to be a viable means of producing smooth bass response in many rooms.



## Using the Subwoofer Lo-Pass Control

With the System Two, the Lo-Pass control should be set at one third of its range to begin with. The goal is to optimize the performance of the system by ensuring that the subwoofer and satellites produce a cohesive and well integrated sound "picture." The low frequency response of the System Two satellites has been optimized to work with approximately a 90 Hz crossover point. This provides maximum performance and smooth integration with a dedicated subwoofer.

In general, higher crossover frequencies pass more bass but can tend to sound boomy and are more easily localized to the subwoofer. Higher crossover frequencies may be suitable, however, when using very small satellites that have no real low frequency performance. Settings lower than 90Hz should be employed if you are using larger speakers that have extended bass response. This way, the subwoofer will only reproduce the very lowest bass frequencies that are in the range where the large main speakers begin to roll off. It's generally undesirable to have the main speakers and the subwoofer overlap too much. Larger speakers means a lower Lo-Pass crossover frequency, smaller speakers means a higher Lo-pass crossover frequency. Consult the manufacturer's specified low frequency response for your main speakers to determine the appropriate low-pass setting on your subwoofer.

## The Phase Invert Mode

A subwoofer operating out of phase with the rest of the system will not provide optimum low frequency performance. Also, the correct subwoofer phase can enhance room acoustics. Since there is so much variation in the industry regarding phase, and no standards have been established, a switch that will reverse the phase of the subwoofer is provided on the subwoofer amplifier's rear panel. Listen to a monaural musical source with strong bass content. (For example, you can use the mono switch on an FM tuner or preamp, or use a Y-connector on the outputs of one of your source components to get a mono signal.) Experiment with the position of the phase switch to get the most extended bass. It should be obvious which is the correct setting. In particular, there will be a smoother more integrated transition between the satellites and the subwoofer when they are properly phased.

## A Word About Center Channel Modes

Many Dolby Pro Logic surround processors and surround receivers feature a "Wide" and "Normal" mode for the center channel speaker. Atlantic Technology recommends that the center channel be operated in the Normal mode when using a powered subwoofer. The center channel speaker will sound more dynamic and the intelligibility of the system will generally be improved when in the "normal" mode. With the newer discrete digital systems (Dolby Digital AC-3, etc.) most controllers provide the option of operating the front and rear speakers in a limited bandwidth (Small) or full range (Large) setting. When using a subwoofer with Atlantic Technology speakers we recommend setting such a controller to the Small position for all the speakers in the system.

## Care and Feeding of Your Subwoofer

The System Two PBM is constructed from 3/4" Medium Density Fiberboard. MDF is a non-resonant material ideal for speaker system enclosures. The outside of the woofer is layered with a high quality Black Oak finished vinyl laminate. To clean the cabinet you may use a soft cloth either dry or *slightly* dampened with clean water. Be careful not to wet the cabinet or allow any water to enter the cabinet seams.

Avoid placing your speakers in direct sunlight or near a source of heat that may, over time, damage the finish.

**Important:** Save Your Boxes! If you can do so, save the carton, packing pieces and plastic bags that came with your subwoofer. They will be useful in case you move or have to ship your subwoofer for any reason. In any case, save all packing materials until you are certain that the system has suffered no damage in shipment. If you find such damage, either visible or internal, contact your dealer immediately for the proper return procedure.

## Subwoofer Troubleshooting Guide

Once your subwoofer is set up, you should have many years of maintenance free enjoyment from your system. However, if you should encounter a problem, refer to the following guide to help find the solution. If the problem persists, please contact your local authorized Atlantic Technology dealer.

Problem	Possible Cause	Possible Solution
<b>No bass output</b>	AC power cord unplugged or plugged into a non-working outlet. Input cables not securely connected or defective.	Plug into a working outlet. Check all connections, then try another input cable.
<b>Audible buzz or hum</b>	Input cable not securely connected or defective. Single HI LEVEL input connected to the RIGHT channel only. Ground loop through antenna or cable TV system input.	Check all connections, then try another input cable. Connect to the LEFT input channel. Test by disconnecting antenna and/or cable system input leads. If hum goes away, install isolation balun(s) at that point.
<b>More than one source is audible.</b>	More than one source is playing.	All the subwoofer's inputs are active at all times. Turn off unwanted source.
<b>Weak bass</b>	Subwoofer too far from the wall. VARIABLE INPUT LEVEL set too low.	Move the subwoofer closer to a wall or corner. Turn control up somewhat.
<b>Weak bass: vague stereo image</b>	Input source connected to HI LEVEL inputs is wired out of phase.	Check speaker wire connections and reconnect in proper phase.

## Specifications:

<b>Model</b>	Compact Theater Two PBM
<b>Type/Features</b>	Powered Subwoofer 150 Watt all discrete linear Class G power amplifier w/dual power supplies (1) 12" long-throw woofer, 2", 4 layer vented aluminum voice coil, vented motor system. Dual Diversity Crossover System (DDC)™ Variable 50-150Hz, 12dB/Octave low pass output Fixed 24dB/Octave 180Hz Low-Pass Filter Sealed Enclosure Variable line-level stereo inputs and thruputs, line output High-level stereo inputs and thruputs Absolute phase invert switch Gold five-way binding posts Auto signal sensing on/off
<b>Amplifier Power</b>	150 Watts RMS
<b>Amplifier Distortion</b>	<0.025%
<b>Frequency Response</b> (typical in room)	20-180Hz ±3dB
<b>Peak output</b> (SPL)	105dB
<b>Dimensions</b> (W x H x D)	19.75" x 14.75" x 13.75" 502mm x 375mm x 350mm
<b>Weight</b>	53lbs; 117kg

Specifications are those in effect at the time of printing. Atlantic Technology reserves the right to change specifications or appearance at any time without notice.

Dolby Digital, AC-3, 5.1, Dolby Stereo and Dolby Pro Logic are trademarks of Dolby Laboratories Licensing Corporation. DTS is a registered trademark of DTS Technology.

## For Future Reference

Record your system serial number and date of purchase here:

Serial Number \_\_\_\_\_ Date of Purchase \_\_\_\_\_

The serial number is found on the back of the subwoofer near the connecting terminals.



**CAUTION:** To reduce the risk of electric shock, do not remove the cover (or back). No user serviceable parts inside. Refer to qualified personnel.

**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating maintenance (servicing) instructions in the literature accompanying the appliance.